An Overview of 'A Study of Schooling'

by John I. Goodlad, Kenneth A. Sirotnik, and Bette C. Overman

***This first report on "A Study of Schooling" discusses the conceptualization and methodology of the research project. Three subsequent articles will focus on the areas of curriculum and the experiences of students and teachers in the school setting. These are scheduled for publication in the December, January, and February issues of the* Kappan.**

Those of us involved in "A Study of Schooling" over the past six years have been committed to one very basic working assumption: Improving schools requires knowing what is happening in and around them. "A Study of Schooling" presents a modest attempt at this inquiry, an inquiry rooted in the experience of the people in and associated with schools.

Despite an *a*theoretical (not *anti*theoretical) orientation, we started out with a number of beliefs and biases.[1] No research study is without them. They have led us to study a relatively large number of variables existing and interacting within the context of a small number of schools. We have *not* been led to the study of achievement outcomes. It is imperative, therefore, that we clearly delineate the conceptual perspectives underpinning this study and the methodological orientations directly resulting. First, however, we shall detail the kinds of data and data sources utilized, the limitations of these data, examples of research questions that we are exploring with these data, and our intentions during analysis and interpretation.

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What the Study Is and Is Not

Figure 1 provides much detail about the study that we shall not repeat in the narrative. Briefly, however, we studied our subject schools in sets of three.[2] Usually, the high school in each set was chosen first, then a junior high (or middle) school sending students to it, and finally an elementary school sending its graduates to the junior high/middle school. Data collection teams of more than 20 persons each spent approximately a month studying the sets of three schools and gaining information from the surrounding community. The data represent, then, the perceptions of persons associated with these schools and the recorded observations of our data collectors for a brief slice of time in the existence of any given school.

Our sample was drawn from several major regions of the U.S. We chose schools differing with respect to several general features: size, economic status, ethnicity, and whether urban, suburban, or rural. At no time did we seriously consider the possibility of securing anything resembling a random sample of schools in the statistical sense. The study is not designed, then, to produce a set of generalizations and recommendations regarding "the American school" or schooling in the U.S. We have become so accustomed to such surveys or commissioned reports that even responsible reporters for professional media already are referring to our findings as though we and our colleagues are about to pronounce what is needed for the reform of the entire educational system. Nothing could be further from our intentions and capabilities. Our major purpose is simply to provide some insight into the schools studied and to raise thoughtful questions about what they appear to be doing, as well as, perhaps, why they do what they seem to be doing.

Data and Data Sources

The data are predominantly of three types: questionnaire responses from students, teachers, principals, parents, school board members, and central office administrators; observational data pertaining to classrooms or other instructional learning centers such as libraries, shops, gymnasiums, and the like; and interviews with the teachers whose classrooms were observed, the principals, and many nonteaching professional staff members. In addition, there are various curricular documents ranging from courses of study to textbooks and other classroom materials.

The variables studied cluster into major components that appear to be common to all schools but to vary from school to school in the forms of their existence and interactions. These we refer to as *commonplaces.* We identified 16 such commonplaces and have considerable data (usually from several sources) on all of them: teaching practices, content or subject matter, instructional materials, physical environment, activities, human resources, evaluation, time, organization, communications, decision making, leadership, goals, issues and problems, implicit (or "hidden") curriculum, and controls or restraints.

The data, therefore, represent a comprehensive view of school life, including aspects of self (personal domain), classroom (instructional domain), the school (institutional domain), and schooling (societal domain). The two-dimensional chart in Figure 1 is a convenient means for organizing this information, using the data sources on the vertical axis, the several domains of focus on the horizontal axis, and samples of commonplaces in

the cells of intersection. Every question we raised about these commonplaces would appear in some cell; some would appear in many cells. Rather than repeat commonplaces in each cell, however, we show a sampling of the types of data collected. These are examples only, representing a fraction of the total data base now available.

Purposes and Research Questions

Inasmuch as the primary purpose throughout the study has been to provide a relatively detailed picture of a small sample of schools, our inquiry has focused on factors within the context of schooling — *contextual* variables, which we define as the elements that contribute to the environment of the classroom, school, and community within which school-based learning takes place. Questions guiding us include:

— How are subjects being taught? E.g., What learning activities, materials, grouping patterns, etc., are being used? Are there characteristic patterns for different subject areas and for different levels of schooling?

— How is time used? E.g., How much time is spent on instruction as opposed to noninstructional activities?

— Do teachers use instructional objectives? Does the use of instructional objectives vary according to subject area, grade level, teacher training?

— How much influence do teachers perceive they have in making decisions about what goes on in their school (e.g., curriculum, pupil behavior, resource utilization, etc.)?

— What are the relationships (if any) between teacher job satisfaction and their perception of the work environment of the school?

— What variations are there in student perceptions of the relevance of what they are learning across schools, at different levels of schooling, and across subjects?

— Are different subject areas characterized by different classroom climates and instructional practices?

— What are students' expectations for further education? How do these expectations relate to self-concept measures?

— What similarities and differences are there among students, teachers, and parents regarding their preferred and perceived goals for schools?

— What do parents, teachers, and students perceive to be the major problems at their schools? What are their beliefs and attitudes regarding some of the current issues in schooling today (e.g., desegregation, teachers unions, minimum competency, etc.)?

— Do parents see the schools as meeting the needs of their children? How satisfied are parents with their schools in general and with respect to what their children are learning in specific subject fields?

The above questions are samples and represent only the tip of the iceberg. The answers to them so far as our 38 schools are concerned should stimulate provocative dialogue about schooling and, we hope, direct more attention to contextual variables in determining educational quality and considering educational improvement. It should become apparent that we are interested in formulating, not testing, hypotheses about schooling. Our second purpose, then, is to encourage study of what goes on in schools and to stimulate discussion about what schools are for and how they might be improved.

Analysis and Interpretation

In seeking to analyze and interpret the data, one of our most difficult decisions was that of selecting appropriate *units* to be analyzed. The unit-of-analysis issue is a critical one and one that has been receiving a great deal of attention lately. Very different correlational results may be obtained if we look at individuals *across* classes and schools, individuals *within* classes and schools, and/or classes and schools themselves (using aggregates based on individual data). Each of these analyses demands a different conceptual perspective.[3]

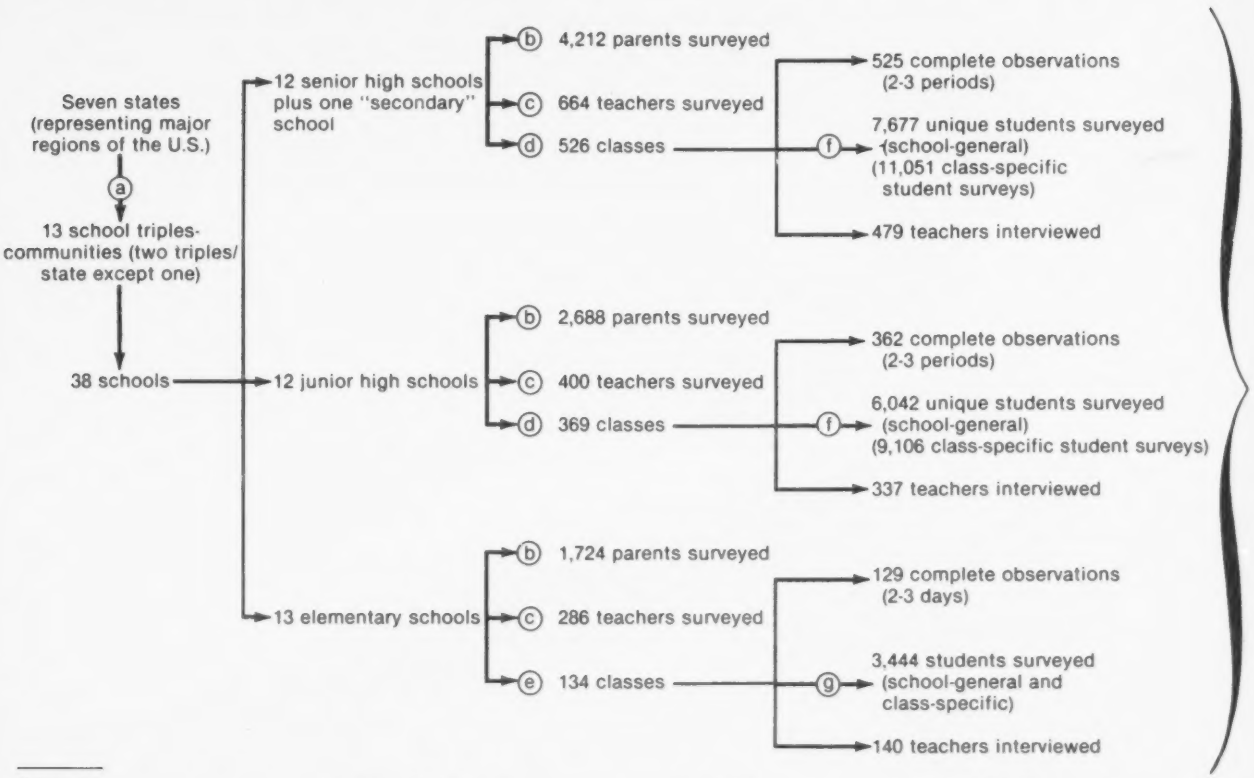
Our initial technical reports have arrayed data by school and compared the responses of relevant data sources. For example, we have tabulated and compared perceptions of goal preferences and goal emphases for teachers, students, and parents at each school. Similar analyses have been made of attitudes toward a number of school issues such as busing and desegregation. Student preferences for school subjects and their views of the importance and difficulty of subjects have been analyzed. Teachers' perceptions of their work environment (e.g., principal leadership, trust, work facilitation, etc.) are being analyzed. Observation summary reports are being prepared for each class, for each subject within each school, and for each subject across schools. Interview responses and curriculum materials are being content-analyzed. Patterns of work-group functioning are being put together from the sociometric data of each school. All analyses have proceeded separately for each level of schooling: elementary, junior high (or middle), and senior high schools. The next steps, currently under way, are to identify and reflect upon trends or patterns that emerge as we look at the *interrelationships* between variables as suggested, for example, by the research questions posed in the previous section.

Perspectives: Conceptual and Methodological

Having described the study, we return to the critical issue: What assumptions guided our research? Schools as total entities are relatively unstudied phenomena. There have been, however, thousands of studies of pieces of the whole — usually of students and teaching practices and usually within a conceptual framework designed to test the impact of the latter on the former. A "production" model of schooling is commonly assumed. In brief, money and other resources (including ideas) are put into the system, find their way into schools, and produce returns in the form of achievement gains in the human products (determined from standardized test scores). In a form of shorthand, this is referred to as the linear, input—environmental response—output model. It agrees with the more general rational model of ends before activities and activities judged according to their contribution to the attainment of ends.

Such a model draws attention to inputs and outputs, the relationship between the two, and technical aspects of that relationship. Efficiency (determined by a high output in relation to input) is important and becomes an index of educational quality, not just fiscal attributes. The model tends not to focus on the environment, how it functions, and how it responds to interventions. Figuratively speaking, the school becomes a kind of box within which occur the teaching and learning that presumably produce measurable student achievement. If we judge from the frequency with which practices are assumed but not examined in drawing conclusions about schooling, studying the

Figure 1. A Study of Schooling Sampling, Data Sources, Data, and Procedures


Seven states (representing major regions of the U.S.)
(a)
13 school triples-communities (two triples/state except one)
38 schools
12 senior high schools plus one "secondary" school
(b) 4,212 parents surveyed
(c) 664 teachers surveyed
(d) 526 classes
525 complete observations (2-3 periods)
(f)
7,677 unique students surveyed (school-general) (11,051 class-specific student surveys)
479 teachers interviewed
12 junior high schools
(b) 2,688 parents surveyed
(c) 400 teachers surveyed
(d) 369 classes
362 complete observations (2-3 periods)
(f)
6,042 unique students surveyed (school-general) (9,106 class-specific student surveys)
337 teachers interviewed
13 elementary schools
(b) 1,724 parents surveyed
(c) 286 teachers surveyed
(e) 134 classes
129 complete observations (2-3 days)
(g)
3,444 students surveyed (school-general and class-specific)
140 teachers interviewed

Notes:

(a) Four stratification factors:

Ideal
- small/large student enrollment
- low/middle economic status
- rural/metropolitan location
- white/nonwhite/racial-ethnic mix

Obtained
- High school enrollment range: 60-2,700
- Median family income range: $5,000-$20,000
- Rural farming to inner city
- 99% white; 99% black; 99% Mexican-American; 50%-50% white-black; 50%-50% white/Mexican-American

(b) Surveys were mailed to every family at each school. These results represent an average 31% return rate.

Other community data sources from which survey data were obtained included:
- Central office/board of education
- School organizations
- Community organizations/agencies
- "Community others"

(c) Questionnaire packets were distributed to every teacher at each school. These results represent an average response rate of 86%.

Additional data collected from each teacher included:
- Curriculum materials
- Work-group sociometric

Additional school data sources surveyed included:
- Principal (also interviewed)
- Assistant principal(s)
- Counselors
- Librarian(s)
- All other nonteaching professionals

(d) Secondary classes sampled according to eight-subject curriculum outline and these sampling considerations:
- high, average, and low-tracked classes
- nearly equal numbers of classes per period
- representative distribution of teachers on sex and race/ethnicity

These results represent the following distribution of classes by subject area:
- English 17%
- Mathematics 16%
- Social studies 15%
- Science 12%
- The arts 12%
- Foreign language 4%
- Vocational/career education 17%
- Physical education 7%

(e) Two classes at each grade level at each elementary school were sampled. These results represent nearly equal proportions of early (grades 1-3) and upper (grades 4-6) elementary classes.

(f) Secondary students sampled represented an average 62% of the total student enrollment. "Class-specific" data refer to all survey questions asked of students pertaining to the specific class sampled. All other questions fall into the "school-general" category.

(g) Elementary students sampled represented an average 51% of the total student enrollment.

effectiveness of schools using the model described appears not to require any observations of schools and classrooms or interactions.

For a variety of reasons, interest in studying the phenomena of classrooms and schools has grown recently. The approach has been variously described as qualitative, naturalistic, or ethnographic, although these words are not interchangeable. Accompanying some such work has been the suggestion that it involves an alternative theoretical perspective on schooling. This is not necessarily the case. Indeed, descriptive work is more likely to proceed for purposes of improving our understanding of relationships (or lack of them) between ends and means, in order to "generate a new list of variables to insert into someone's production-function equation."[4] The prevailing production model of schooling is powerful and seductive; it will be around for a long time to come.

Nonetheless, we believe that the factory analogy is not a good one. It does not adequately describe or explain what goes on in schools. Consequently, it is a weak predictor of what is likely to happen when interventions designed to increase productivity are injected into the system. We endeavored, therefore, to eschew as much as possible the production model and the assumptions accompanying it. But this bias is *not* the basis for our decision to exclude data on achievement outcomes. Our rejection of the factory model does not imply a rejection of achievement measures. Clearly, achievement outcomes are among the primary indicators of the success of schooling. They have also been extensively studied. Given our perspective, we would no more attempt to develop an internally consistent picture of the context of schooling based upon variables selected because of their correlations with achievement measures than would a developer of an achievement test select items that correlated with classroom and school work environment (or climate) as perceived by teachers and students. Once the contex-

Data Domains (Examples Only)

Data Sources	Personal	Class	School	Schooling
Teachers	• Demography • Reasons for entering education profession • Teaching experience • Educational beliefs	• Relative amounts of time spent on instruction, behavior control, and routines • Use of behavioral objectives • Frequency of certain learning activities	• Relative importance of school functions (social, intellectual, personal, and vocational) • School "climate" or work environment • Major problems • Equality of education (ability, race, sex)	• Desegregation • Fiscal support of public education • Teachers unions • Minimum competency • Role of global education in the schools
Students	• Demography • Self-concept • Educational aspirations	•Relative amounts of time spent on instruction, behavior control, and routines • Difficulty of class content • Frequency of certain learning activites • Class "climate"	• Relative importance of school functions • Evaluative rating • Major problems • Equality of education • Adequacy of counseling services • Subject-area preferences	• Desegregation • Role of job experience in schools • Value of schools
Parents	• Demography • Years lived in community • Political beliefs		• Relative importance of school functions • Evaluative rating • Major problems • Equality of education • Involvement in activities and decision making • Objectionable learning materials	• Desegregation • Fiscal support of public education • Teachers unions • Teachers' salaries • Minimum competency • Role of global education in schools
Classroom* (Teacher/Student Interaction)		• Relative amounts of time spent on instruction, behavior control, and routines • Use of corrective feedback • Use of open versus closed questions • Instructional time spent with total class versus individual versus groups		

*Data were collected on this data source through observation. For the purposes of this conceptualization, observers are being treated not as a data source, but as part of the data collection *method*, just as questionnaire and/or interview methods were used in collecting data from teachers, students, and parents.

tual domain is sufficiently well described, the obvious next step is a longitudinal study searching out the connections with achievement indicators. Such a study is long overdue, but at present, in our view, it is premature.

So we abandoned the theoretical perspective that views schooling as inputs and outputs. Obviously, given the foregoing discussion, this should not be interpreted to mean that no prior conceptualization of the phenomena to be investigated was involved. Our point of view has guided us in each phase of the research process, especially now as we begin analysis and interpretation. In describing a wide array of variables assumed to be important in the context of children's education, we are necessarily conducting *exploratory* rather than *confirmatory* data analyses.[5] Relationships between variables are being systematically explored for the purposes of generating hypotheses rather than confirming hypotheses.

Closely related to our stance as exploratory researchers is our view regarding the utility of tests of statistical significance. The proliferation and often indiscriminate use of such tests in educational research would appear to indicate a subtle equation of the necessity for significance tests with the *presence* of quantifiable data rather than with the *purpose* behind collecting the data. Besides being of rather limited value when used appropriately, tests of statistical significance are only valid when the sample is randomly selected from a "target" population, and it is this population — not the sample — that is the research focus. As we noted earlier, quite the opposite is true for "A Study of Schooling." Accordingly, the analysis of the data is wholly descriptive, and interpretations will be offered with heuristic rather than inferential purposes in mind.

Concluding Comments

Earlier, we expressed doubts about the utility of the factory/production model of

schooling in seeking either to describe or improve schools. It offered no appeal to us as we sought to conceptualize how to study schools so that we might come to understand them better. In rejecting the theoretical perspective from which this model stems, we substitute no clearly delineated alternative theory.

As stated at the beginning of this article, we have been attracted, however, by interrelated concepts that point to the systemic character of schools. Seymour Sarason refers to schools as having their own unique cultures.[6] The very idea of culture turns the attention of the social scientist to the characteristics peculiar to a specific group — to the total pattern of human behavior in a given setting. For us, then, the variables to be studied in seeking to understand schools are those found within the *context* of schools. Our theoretical perspective for inquiry, to the degree we have one, might be described as a contextual one.

With such a perspective, we simply can not and do not assume that schools, in their daily functioning, are predominantly oriented to the goals set for them by society. Far more significant may be the interests, beliefs, and problems of administrators, teachers, and students who pass through the schoolhouse doors each day. The rules and regulations by which schools operate and the subtle accommodations negotiated by teachers and students may be geared more to the problems people experience in living together in close quarters than to assuring academic productivity. For many students, working out reasonably comfortable relationships with teachers and other students may absorb most of their time and energy. Schools may be markedly different in the degree to which social as compared with intellectual pursuits are dominant. For us, studying what goes on in schools holds more promise for understanding schools (and, therefore, for being in a position to improve them) than studying what comes out of schools.

The development of an alternative theory of schooling has *not* been a goal of "A Study of Schooling." It is fitting, however, that contributing to theoretical reflections on schools and schooling now begins to emerge as a possible goal. Should this occur, it will be because our contextual bias turns out to be grounded in or substantiated by the data.[7] The production model has become even less attractive to us than it was at the outset of this study. Ecological theory, which is necessarily grounded in contextual data, becomes increasingly appealing in seeking to make sense out of our contextual data: "Ecology . . . is the study of systems at a level in which individuals or whole organisms may be considered elements of interaction, either among themselves or with a loosely organized environmental matrix."[8]

The reports that will appear in the *Kappan* over the next three months will attempt to show how our data have been organized vis-à-vis curriculum, the environment of the student, and the environment of the adults working in the school. The data reported in those articles will be chosen for the purposes of exemplification only. Often they will be in the form of marginals (means, percentages). Arraying such data is only an intermediate step toward viewing more complex relationships — toward describing the ecology of a school. Whether we shall be able to reach that final goal remains to be seen.

This study will have achieved one of its several purposes if it stimulates more and better explorations of what goes on in schools. An inquiry of this sort "is most successful when it stimulates others to make the concepts and techniques it has used look crude and become obsolete as rapidly as possible."[9] It will have achieved another if it enlightens our understanding of schools. And it will have achieved a third purpose if groups seeking to improve local schools are stimulated to study and analyze what goes on there.

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1. John I. Goodlad, "What Goes On in Our Schools?," *Educational Researcher*, 6 March 1977, pp. 3-6.
2. Since the schools were studied in sets of three, one might expect the total to be 39. However, one middle and one high school were found to operate essentially as a single school and are treated as such in the study.
3. Kenneth Sirotnik, "Psychometric Implications of the Unit-of-Analysis 'Problem' (with Examples from the Measurement of Organizational Climate)," Technical Report, *A Study of Schooling* (Los Angeles: Institute for Development of Educational Activities, Inc., March 1979).
4. Walter Doyle, "Research on Classroom Realities: Who Needs It?," paper presented at the annual meeting of the American Educational Research Association, 1978, p. 5.
5. John W. Tukey, *Exploratory Data Analysis* (Reading, Mass.: Addison-Wesley, 1977).
6. Seymour B. Sarason, *The Culture of the School and the Problem of Change* (Boston: Allyn and Bacon, 1971).
7. Barney G. Glaser and Anselm L. Strauss, *The Discovery of Grounded Theory* (Chicago: Aldine, 1967).
8. Ramón Margalof, *Perspectives in Ecological Theory* (Chicago: University of Chicago Press, 1968), p. 4.
9. Samuel A. Stouffer et al., *The American Soldier* (Princeton, N.J.: Princeton University Press, 1949), p. 5. □

Figure 2. The Maximum Triple Data Collection Plan

	No. Data Collectors (DC)	DC Workload: Per Day**	No. Classes Sampled	No. DC Periods/Days/Hours to Complete Class Observation	Student Survey	Products	Work Days Required	
High School	4	× 4 periods	48	× 3 periods		16 DC-periods per day 144 DC-periods obs.	9 9 } 18	about 18 days per triple
					× 3 periods	144 DC-periods survey	9	
Junior High School	3	× 4 periods	36	× 3 periods		12 DC-periods per day 108 DC-periods obs.	9 9 } 18	
					× 3 periods	108 DC-periods survey	9	
Elementary School	4	× 1 day	12	× 3 days		4 DC-periods per day 36 DC-periods obs.	9 } 13	
					× 4 "hr." sessions	48 "hr." sessions @3 per day per DC	4	

*Additional DCs		
Site coordinator	1	
School managers	3	
Interviewers	2	(1 for high school; 1 for junior high & elementary schools)
"Floaters"	2	(for reliability checks in about 35% classes observed)
Community workers	5	(for parent follow up and data collection from other community sources)
Total Field Workers	24	

**Remaining time allocated to editing observation forms or student data collection logistics.

The *Kappan* Interviews Ernest Sternglass

The Nuclear Radiation/SAT Decline Connection

The SAT scores of young people born in Utah the year of the heaviest bomb testing in Nevada are 26 points lower than scores of persons born before and after that year. A radiological physicist who has researched this and related phenomena offers some disturbing hypotheses.

On Monday, September 3, Ernest Sternglass, a professor of radiological physics at the University of Pittsburgh, presented evidence at the annual meeting of the American Psychological Association in New York City that there is a connection between low SAT scores in the Seventies and nuclear bomb tests in Nevada in the late Fifties. The story was picked up by the wire services, and many U.S. newspapers headlined it that week. However, newspaper coverage was generally not very complete. The *Kappan* therefore contacted Sternglass and conducted the following interview in Bloomington, Indiana, where he is teaching an Indiana University course on the history and philosophy of science.

KAPPAN: Professor Sternglass, would you please summarize the major findings of your study for *Kappan* readers. I understand that when you read a 1975 *New York Times* story about the decline in SAT scores, you said, "My God, that happened 18 years after the biggest bomb tests in Nevada," and you began to search for evidence of a connection between the two events. What is the evidence that you have uncovered since you began your study?

STERNGLASS: Well, the most important evidence that I have managed to obtain since then was data on regional changes within the U.S. — differences in SAT score decline between the regions in which the College Entrance Examination Board has divided the country [see Table 1]. On the hypothesis that the decline resulted mainly from effects on developing infants in the late Fifties, one would expect the greatest drop in SAT scores to occur geographically near the test site in Nevada and of course on the West Coast, where heavy fallout came down with the rain from U.S. tests in the Pacific Ocean and from Russian tests in Siberia. When I obtained reports from the Educational Testing Service in Princeton breaking down the SAT scores by region, I discovered that the largest drop in the U.S. for the period of the children born in the Fifties did indeed take place in the western region of the U.S. where we generally believe the school systems and the environment to be most favorable. In sharp contrast, the Midwest — containing Detroit, Chicago, Cleveland, and other heavily populated urban areas where the school systems were being blamed — showed the lowest drop in SAT scores for the period of the largest nuclear testing, which occurred in 1957-58. And the largest drop during that period occurred in Utah, where the verbal SAT scores declined 26 points in two years, while in Ohio, 2,000 miles away, it declined only two points [Table 2].

Table 1. Regional Changes In Mean Verbal SAT Scores, 1973-74 vs. 1975-76 (Birth Years 1956 vs. 1958)

Region	SAT Scores	Two-Year Drop
New England	447 435	-12
Middle Atlantic	445 431	-14
South	426 413	-13
Midwest	459 451	- 8
Southwest	444 433	-11
West	454 435	-19

K: Have these figures been subjected to tests of statistical difference and, if so, at what confidence level?

S: The normal fluctuation in the nine testing years from 1956-57 to 1964-65 was within a range of only plus or minus three points. Thus no statistical test is needed to show that a change of minus 26 points in two years is not likely to be an accidental fluctuation.

K: Why did the South experience declines [Table 1] as large as those of New England? It was my impression that the fallout drift from Nevada was northeastward, over the Great Lakes and into New England, where it was heavy.

S: Fallout from the Pacific and Nevada tests also rained out over the South, especially in the coastal areas of high annual precipitation.

K: I understand that the effects of radiation come from Strontium 90 and Iodine 131. How is it that these radioactive chemicals affect the brain or the nervous system? What tests or studies demonstrate these effects? And how do you validate the claims or conclusions you have announced?

S: It has been known for some time from numerous animal and human studies that radioactive Iodine 131 goes to the thyroid, especially for the developing fetus and the young infant, concentrating 10 to 100 times more than in the adult. The beta rays emitted by the iodine damage the function of the thyroid to

Table 2. Mean Verbal SAT Scores, 1972-77, In Selected States

	Birth Year	Year SAT Taken	SAT Verbal Score*	1956-58 Decline
California	1955	1972-73	452	
	1956	1973-74	450	
	1957	1974-75	435	-20
	1958	1975-76	430	
	1959	1976-77	427	
New York	1955	1972-73	454	
	1956	1973-74	454	
	1957	1974-75	441	-17
	1958	1975-76	437	
	1959	1976-77	434	
Ohio	1955	1972-73	457	
	1956	1973-74	459	
	1957	1974-75	456	- 2
	1958	1975-76	457	
	1959	1976-77	459	
Utah	1955	1972-73	528	
	1956	1973-74	532	
	1957	1974-75	516	-26
	1958	1975-76	506	
	1959	1976-77	515	

*Mean for entire state

Source: The College Board, 889 Seventh Ave., New York, NY 10019.

various degrees, ultimately leading to an increase in thyroid nodules, thyroid inflammation, and thyroid cancer. In fact, a study published some time ago shows that in Utah there was a three- to fourfold increase in these conditions among young people, especially young women, 10 to 20 years after the heavy fallout descended in the mid-Fifties in that area. The iodine tends to slow down the production of growth hormones and one gets a condition known as hypothyroidism — which is known to be associated with various forms of mental retardation, both severe and mild. In effect, the physical growth of the infant is slowed down and that leads both to reduced brain size and reduced physical size.

This had previously been observed in Hiroshima and Nagasaki. As a matter of fact, a 1969 study by the United Nations Scientific Committee on the Effects of Atomic Radiation published a table showing that the children of pregnant women who survived Hiroshima and Nagasaki at some distance from the bomb were found 20 years later to have had varying degrees of mental retardation, in direct proportion to the amount of the radiation dose they had received. So the connection between radiation and mental retardation is well established, not only by numerous animal experiments but through actual follow-up of human population accidentally exposed to radiation.

There's another aspect to it, and it has to do with the effect of Strontium 90. Strontium 90, unlike Iodine 131, is a very long-lived radioactive chemical. It has a half-life of about 30 years in contrast to only eight days for the iodine. There is a cumulative increase in the amount of Strontium 90 in the skeleton of, say, a young woman drinking contaminated milk over a period of years during the bomb testing. When she becomes pregnant, the newly developing infant, requiring calcium for its bone structure, draws it from the mother's skeleton, which acts just like a reservoir. So the Strontium 90 is incorporated in the baby's bones. At the same time, the Strontium 90 keeps decaying into radioactive Yttrium 90. Now Yttrium 90 was found in the 1950s, in a series of animal studies published in Germany, to seek out soft tissue organs, and especially the pituitary gland. But, as you may know, the pituitary gland is the master gland of the body. Its hormones control the function and operation not only of the thyroid but many of the other glands, especially the gonads, which in turn control sexual maturation, and also the adrenal gland, which affects the metabolism and well-being of the entire body. Thus a gradual build-up of Strontium 90 would be expected to lead to a gradual deterioration of the functions controlled by the pituitary and in turn by the thyroid and other key glands in the newborn.

K: That is really frightening. Why is it we have not heard more about the effects of nuclear radiation on brain function? There has been a great deal written in the popular press about radiation sickness and cancer and so on. I don't recall stories to the effect that it impairs intelligence directly.

S: I don't know why the press has not picked this up, but there were literally hundreds of studies of this phenomenon done, published, referred to, and summarized in U.N. scientific reports. Numerous studies with rats and mice and dogs, especially in Russia many years ago, showed that amazingly severe effects on learning abilities were discovered in animals at surprisingly low radiation levels. This has not been emphasized in this country, partly because these were animal studies, so that no direct connection with human learning abilities could be proven. However, in 1969, when the United Nations Scientific Committee published its findings, it issued a bulletin, discussed in the *New York Times*, pointing out the great danger of low-level radiation as a cause of mental retardation, both from the misuse of diagnostic x-rays during pregnancy and from other sources of radiation such as nuclear weapons. But I imagine it was not widely published and publicized by media other than the *Times*.

K: As you say, the greatest radiation occurred during the period before anyone realized that testing bombs in the atmosphere would be so disastrous. What is the situation now? Is there any likelihood that radiation damage of this sort is coming from other sources, and if so what are those sources? What about the future?

S: We have had, of course, a growing concern about radiation from diagnostic x-rays during pregnancy. It used to be common practice in the Fifties and early Sixties for women just before delivery to be given a series of diagnostic x-rays, especially if there was any question about the possibility of twins or the position of the baby at delivery. Today this technique is much less often used. No more than a few percent of pregnant women are subjected to diagnostic x-rays in the last few months of pregnancy; ultrasound has been substituted.

Another source of radiation that of course concerns us today is routine releases from large nuclear plants, and accidents of the serious type that occurred at Three Mile Island. In fact, it was because of my awareness of these problems for the developing fetus that at a news conference on the second day of the accident in Harrisburg I urged the governor and the Nuclear Regulatory Commission immediately to evacuate pregnant women within five miles of the area, not because of the potential of a major meltdown (which would have required the evacuation of everyone), but because radioactive iodine, xenon, krypton, and many other radioactive elements were being discharged in an uncontrolled manner. Even though it might not present a very serious hazard to the health of an adult, for the developing fetus some 100 times more sensitive than an adult this did represent a potentially serious problem.

K: Were the pregnant women near Three Mile Island actually evacuated, per your suggestion?

S: Yes. The next day Gov. Dick Thornburgh ordered the evacuation of pregnant women and of children below school age.

K: Testing of nuclear weapons in the U.S. now appears to be properly controlled. But what are the prospects for a great deal of nuclear radiation coming from those countries that have not yet limited their tests?

S: Well, the Chinese are continuing with nuclear weapons tests in the atmosphere. The United States, Russia, Britain, and France have now ended atmospheric bomb tests, but there's a very clear possibility of some real tragedies occurring, as one did in October 1976, when a large cloud of radioactive debris passed over the Eastern Seaboard of the U.S. during a time when there was heavy rainfall. Beginning in the state of Delaware and going all the way up to Maine, there were high levels of radioactive iodine in the milk, so intense that farmers in Massachusetts withdrew cows from pasture. And I did a study, which I presented at a meeting of the National Academy of Science's committee on the biological effects of ionizing radiation in 1977, pointing out that indeed there had been a significant rise in infant deaths in the first few months of 1977 — specifically three to six months after the arrival of the fallout along the East Coast, whereas in the rest of the U.S. infant mortality continued to decline. So we do have the concern that any resumption of atmospheric testing by the other countries of the world or the use of nuclear weapons anywhere, even thousands of miles away, would have worldwide effects, not only on health but also on the intelligence of the next generation.

K: That 1976 cloud you referred to came from China?

S: That's right.

K: Is there any similarity between nuclear radiation that damages living tissues and the radiation we are constantly getting in the electromagnetic spectrum — from x-rays down through microwaves, radiowaves, and extremely low frequency waves? This has been discussed in some of the popular periodicals.

S: There is some. Of course diagnostic x-rays do not tend to concentrate in critical glands like the thyroid and the pituitary the way radioactive chemicals do when they get into our food. There is growing evidence that microwave radiation can induce abnormalities in the newborn, and it is therefore very important to take precautions about an overuse of microwave radiation in areas where it can reach pregnant women. Similar prob-

If the government had not suppressed critical information, we might not have built large nuclear reactors near major population centers.

lems probably exist with sources of other radiation, but at this point in our history the evidence strongly points to fission products as the most hazardous environmental agent threatening development of the newborn and therefore the health of future generations.

K: Since congenital defects come from the same causes as mental damage, would you discuss those and where they occur most frequently.

S: In a 1969 study a group of my students and myself went through the U.S. vital statistics to discover where congenital defects went up the most during the time of nuclear testing. We discovered that this happened in Utah. Especially during the mid-Fifties and early Sixties, there was about a 50% increase in the number of children born with congenital defects that were serious enough for the children to succumb to them in the first five years of life. There was a sharp rise that peaked around 1957-58 and then declined again briefly during the moratorium on testing between 1959 and 1960. And then, when testing was resumed in 1961-62, there was a second peak. The congenital defects did not go down again to their pretesting level until after the nuclear test ban came into effect in 1963. So we have strong evidence to indicate that, besides effects on the central nervous system that led to mild forms of defects, there was also an increase in severe congenital malformations, which of course often led to death of the children. As a control, we also looked at the number of children of that age group who died of accidental causes. There was no such peaking in the period of the mid-Fifties in Utah.

K: You've been quoted as saying that you believe a great deal of information that came to light in 1963 — partially as a result of your article in *Science* magazine predicting that childhood cancer would increase notably — has been suppressed by the government. This information had to do with the effects of radioactivity in Nevada and Utah. What, exactly, was suppressed?

S: A study had been carried out by Dr. Edward Weiss of the U.S. Public Health Service in 1964 relative to possible changes in leukemia rates among young children in the Utah area. He discovered that there indeed appeared to have been a rise, as I had predicted. The Atomic Energy Commission and the White House, according to documents uncovered under the Freedom of Information Act in an article by Bill Curry published in the *Washington Post* for 14 April 1979, pressured the Public Health Service not to permit publication of that article. Only much more recently has this come to light as a result of both the *Washington Post* and *New York Times* obtaining information that had previously been classified within the government. This information showed that large clouds of radioactivity from the Nevada test site drifted into the Los Angeles area during the late 1950s. But pertinent facts were apparently kept from the public. For example, the Public Health Service was forced to cooperate by the military and the Atomic Energy Commission in concealing the fact that exposure of critical internal organs to radiation was far more severe and effects were far worse than had been previously believed.

This was all felt to be necessary in the interest of national security. As a result, the public was never fully informed that the government knew that many individuals were being heavily exposed and that there was evidence of thyroid abnormalities and leukemia abnormalities as early as the beginning of the 1960s. Of course, in retrospect, if that information had become available we would clearly have had second thoughts about building large nuclear reactors with the potential of major accidents close to all of our major population centers.

K: You knew Einstein in the last years of his life, I understand, and you have a note from him saying, "Be stubborn." What is the significance of that admonition? What led him to say it to you?

S: Well, I had gone to him way back in 1947 with some ideas about a particular physical theory I was working on relating to the ejection of electrons from solids. It resembled the photoelectric effect for which he had won a Nobel Prize in the Twenties. My theory contradicted much that was going on at the time in solid-state physics, but he felt that I had a very reasonable idea and he encouraged me to follow it up.

I also discussed with him other problems, such as the danger of a nuclear arms race and questions of a more basic philosophical character having to do with quantum theory and wave mechanics and the argument that had been going on between the Bohr-Heisenberg school of quantum physics and the school that he represented, which did not believe that everything was governed solely by chance on the atomic scale. I had myself concluded that an explanation of atomic phenomena might use a space-time description comprehensible in the ordinary classical way, and he encouraged me to pursue that kind of approach. So many years later, on the occasion of his seventy-fifth birthday, I sent him a copy of a paper I had written on my theory of electron ejection from solids, which had finally been published after much opposition. He encouraged me by writing on the back of a printed thank-you card the words, "Be stubborn." This brief note has helped me considerably in pursuing what apparently are, shall we say, initially unpopular or hard-to-defend ideas or points of view. He warned me that new ideas are easily crushed by strong opposition. He said, "Be careful. Do not allow your ideas to be crushed too early. Be persistent, be stubborn in pursuing them until they have a chance to be fully tested."

K: That stubbornness may be tested if we start an argument in the education community with publication of this interview. I have a few final questions. Hermann J. Muller won the Nobel Prize for discovering in 1947 the serious damage radiation produces in the genes. What are the possible future effects of the current much higher levels of radiation for humankind? Will the damage show up more notably in brain disturbances, or in other parts of the body? I think we've covered that in a sense, but maybe you'd like to elaborate.

S: I can offer a note of hope: namely, that much of the increase in congenital defects that occurred in Utah disappeared relatively quickly after the end of bomb testing. This suggests that most of the damage was of a developmental kind during pregnancy rather than damage to the genes of the parents. Apparently, the genes are able to repair themselves very efficiently. They have evolved over billions of years in a radiation environment, and the double-stranded structure of DNA seems to allow the repair of single-strand breaks rather effectively. And so in a sense we might say we've been given a second chance. We've lucked out in that damage has not been all that terrible for future generations. It was mainly confined

"I was surprised by the degree to which radioactivity seems to have dominated other factors [in SAT score declines]."

to the babies in utero at the time of testing.

K: That is rather optimistic. As for your APA paper, will it be published, and if so where and when? Some of our readers will be interested in more detail than we can offer in the *Kappan*.

S: We have not yet decided which journal would be the most suitable for this topic, which of course cuts across lines of developmental biology, educational testing, cognition, and so on. We hope to have the final paper ready in the next few weeks. Then we'll make a decision on where to submit it, but it will probably be a journal in educational psychology.

K: Obviously, further research needs to be done in this area. Do you propose to do any of it? What studies do you think ought to be inaugurated by others?

S: Well, a young educational psychologist from Georgia contacted me about a year and a half ago. He had begun to have ideas along the same lines. His name is Steven Bell, and he works at Berry College in Mount Berry, Georgia. We have begun to collaborate on doing some further studies that would pin this down. One of the things we're now engaged in is examining a local area where a facility exists that began emitting large amounts of radioactivity into the environment many years ago. We propose to look at the SAT scores of children born in the area and compare them with children who moved into the area, in the hope of testing the hypothesis that the difference was not in the educational system but in exposure during early development.

I think many such studies should be done elsewhere. We should have a much greater effort to tie physical and environmental factors to developmental problems in general. But radioactivity appears to be such an enormously toxic material for the developing infant that we should do studies correlating fallout and test scores by states in more detail. We should study cohorts of children born during the periods of heavy testing — such as 1957-1958 — and follow them through the elementary and high school system in order to see whether the prediction is indeed confirmed that a cohort of children born during these years had more severe problems in comparison with those born somewhat before and somewhat later during the period of the test ban. Did the latter show an improved ability to read and write, therefore attaining higher scores on all achievement and intelligence tests? I think this could be done and should be done by educational researchers in different parts of the country.

K: I see we're just making a start in this field. You've already told me you're familiar with the Willard Wirtz report — the CEEB study of SAT score declines from 1963 through 1977. Do you agree generally with its findings? Do you suggest that nuclear radiation is a major cause — more important, perhaps, than some of the elements discussed in the Wirtz report?

S: Well, I must say I was surprised by the degree to which the local radioactivity seems to have dominated other factors. But there's no question that the socioeconomic and educational factors — television viewing, broken homes, changes in curriculum, drug use during pregnancy, smoking and alcohol during pregnancy — all of these things can have an effect. They undoubtedly account for the fact that among the highest scores in the country before nuclear testing were the SAT scores in the state of Utah where the Mormons, of course, have the habit of not smoking and not encouraging drinking and drug use. These habits seem clearly to have had a beneficial influence on the cognitive ability of their children as compared to children raised in other areas where other factors, including much poorer socioeconomic conditions, would have depressed school achievement.

K: I wish we could continue this discussion, but we're severely limited in space. There is one question you've touched on, but perhaps you could say a bit more. Is there any cure for radiation damage, or is there likely to be?

S: Unfortunately, once the thyroid has not functioned properly during development and damage is not discovered within the first few weeks or months after delivery of the baby, dysfunction is more or less permanent. However, much can be done in early testing of children to prevent thyroid hormone deficiency from going undetected. Of course it is also true that with a great deal of special effort and remedial help many of the individuals who have suffered minimal damage can be helped to achieve greater abstract learning ability. The earlier that help is given, apparently, the more effective it is in repairing some of the damage that was done by retarded development.

K: Thank you, Professor Sternglass, for a very interesting discussion. — SME

(A critique of the original Sternglass research as reported at the American Psychological Association convention is being prepared for the Kappan *by Roger Granlund, university health physicist at Pennsylvania State University. Granlund believes that some of the data and conclusions reported here in general terms can be challenged. His response to Sternglass will appear later in this volume.)* □

of the respondents were married. However, women were less likely to be married (60%) and more likely to be single (19%) or divorced (17%) than were men (78%, 9%, 4% respectively). More than half the respondents had received their baccalaureate degrees after 1964. The most frequently reported undergraduate majors were secondary education (33%), science and elementary education (13% each), and other education-related majors (12%). A disproportionate number of women reported majors in elementary education. Half of those with master's degrees had earned them since 1970. Over three-quarters of the master's degrees were in some area of education.

Virtually all the respondents indicated that they were either in the process of meeting or had met program residency requirements. Nearly one-fourth reported that "full-time" study would not be required at any time during their doctoral programs, while the remaining three-fourths reported residency requirements ranging from six months to two years. A higher proportion of women (37%) than of men (25%) were enrolled in programs requiring an internship experience. Less than a quarter of the respondent group held a graduate assistantship of any kind.

Respondents specified the number and the titles of the professional journals they read regularly. Forty-six percent reported reading one or two journals, 49% three or four, and 5% five or more. The journal most likely to be read by educational administration students was the *Phi Delta Kappan* (Table 1). A higher proportion of women read the *Administrative Science Quarterly* and more men read the *NASSP Bulletin* and the *American School Board Journal*.

Of the group, 38% had three to six years of K-12 teaching experience and 27% had seven to 12 years. Women tended to have more teaching experience than men. However, over 15% of the total respondent group did not have any teaching experience. Sixty percent had no experience as a building administrator and over three-fourths reported no central office experience. Of those with central office experience, 25% had only one year. A substantial proportion (34%) indicated that they had had full-time experience in other education-related jobs such as college administration (n = 26), counseling (n = 20), military experience in education (n = 15), administration of federal programs (n = 10), and part-time university teaching (n = 9). Relatively few respondents had experience in research and evaluation units (9%) or in state departments of education (6%).

Central office administration (34%), college and university teaching (20%), and building administration (15%) accounted for over two-thirds of the respondents' first career choices. More men preferred central office positions while more women wanted college teaching, research/evaluation, or "other" education-related positions. When the respondents' first three choices were combined, 63% aspired to central office administration, 61% to college teaching, 38% to building administration, and 25% to research and evaluation.

Table 1. Education Journals Read by Doctoral Students in Educational Administration, by Sex

Journals	Percent of Readers			
	Total	Male	Female	x^2
Administrative Science Quarterly	13	12	16	4.6
American School Board Journal	25	29	15	22.9[c]
Educational Administration Quarterly	25	24	27	.7
Educational Leadership	26	26	26	.0
Educational Management	7	8	5	2.6
Journal of Educational Research	22	20	26	4.2[b]
NASSP Bulletin	32	36	22	23.5[c]
National Elementary Principal	13	14	11	1.5
Nation's Schools Reports	8	9	6	2.1
Phi Delta Kappan	68	68	66	.6
Other Journals[a]	31	39	33	6.2[b]
	n = 1,160	826	334	

[a]Includes *Chronicle of Higher Education, Education Digest, Change, Journal of Higher Education, Exceptional Children, Harvard Educational Review*, etc.
[b]$p < .05$
[c]$p < .01$

For the most part, students' aspirations were consistent with their previous experience; i.e., persons who had been building administrators were more likely to seek building administration positions than were those without similar experience; persons who had had central office experience were more likely to continue in or to seek similar positions. However, persons who preferred research and evaluation and "other" positions in education did not usually have previous related experience. The most often specified "other" position was college administration (n = 35).

Students also reported their attitudes toward a variety of issues related to educational administration in general and doctoral-level preparation at their respective institutions (Table 2). Over half indicated that their programs rewarded imaginative and creative thinking on the part of students (women were less likely to agree). Less than one-quarter considered educational administration to be among the most respected areas of graduate study, although two-thirds reported that their major field courses were as rigorous in an academic sense as courses from other disciplines.

Over half (56%) agreed that important and substantive changes were taking place in the profession, and a similar proportion thought that their doctoral preparation was relevant to problems in the "real world" of education. Some 15% indicated that they would not select educational administration if they were to begin their graduate work again (women were overrepresented). Over half considered their preparation programs to be among the best in the country (men were overrepresented).

The typical educational administration doctoral student is a married male about 37 years of age with one or two children. He received a baccalaureate degree in the late 1960s and a master's degree in the early 1970s, taught for about six years, and served as a building administrator for several years. He probably reads the *Kappan* and possibly the *NASSP Bulletin* as well. The typical doctoral student's immediate career aspiration is to become either a central office administrator or a college professor.

Earlier research has suggested that no differences exist between the aspirations of male and female doctoral students.[8] The Educational Administration Doctoral Student Survey data suggested that differences do exist now, and can probably be explained in part by differences in the type of previous experience each group has had, given the current employment situation. Most women do not have as much administrative experience as men. Consequently, when women finish the doctorate they are not likely to fare as well in competition with their male counterparts for positions in the shrinking pool of vacancies in building and central office administration. Therefore, women are probably turning to what have been in the past less popular types of positions, e.g., research/evaluation and "other" education-related work.

The high proportions of both men and women seeking college teaching positions is somewhat alarming, since relatively few vacancies exist in this area. Faculty have a responsibility to identify students actively seeking university teaching positions and prepare them psychologically for a dif-

The proportion of female doctoral students is increasing while the proportion of female administrators is decreasing.

Table 2. Responses to Selected 'Professional Orientation' Items

Item	Response[a]	Male %	Female %	Total %	x^2
I am in graduate school in order to continue my intellectual development.	A	85	86	85	4.56
	U	4	2	4	
	D	11	12	11	
I consider my doctoral program in educational administration to be one of the best in U.S.	A	56	48	54	16.75[c]
	U	29	28	29	
	D	14	24	17	
Educational administration is among the more respected areas of graduate study.	A	24	23	24	1.48
	U	31	28	30	
	D	45	49	46	
The value of a doctoral degree in educational administration is overestimated	A	37	31	35	3.35
	U	24	28	25	
	D	39	41	40	
My graduate program rewards creative thinking on the part of students.	A	55	52	54	6.53[b]
	U	25	21	24	
	D	20	27	22	
The graduate classroom is not relevant to the problems of the real world.	A	34	33	34	4.05
	U	17	13	16	
	D	49	54	50	
A graduate degree in educational administration is a "union card" and not necessarily appropriate preparation.	A	44	41	43	1.94
	U	14	17	15	
	D	42	42	42	
I would choose educational administration if I were to begin my graduate training again.	A	68	60	66	6.50[b]
	U	18	22	19	
	D	14	18	15	

[a] A = agree
U = uncertain
D = disagree
[b] $p < .05$
[c] $p < .01$

ficult and probably frustrating search. In some cases, they should assist students in a reanalysis of their skills after a survey of the job market.

Nagle and Nagle reported that about 97% of the doctoral programs in 1975 had residency requirements and that 65% required student participation in some type of field experience, i.e., internship or practicum.[9] The EADSS data suggested that 25% of the currently enrolled students do not have a residency requirement and that only 30% must fulfill an internship requirement. It is possible that these differences can be attributed in part to the manner in which the data from the two studies were aggregated. Nagle and Nagle grouped data by institution; the EADSS data were grouped by total respondents. It is likely, however, that preparation programs have "softened" somewhat in their residency requirements in order to attract more students. Given the amount of experience most students have when they begin doctoral preparation, perhaps the once-traditional internship requirement is anachronistic.

In studies using data collected in 1973-74[10] and 1975,[11] 12% and 23% respectively of the doctoral students surveyed were women. In 1978, 29% were women. Similar increases have been noted in the proportion of doctorates awarded to women during this period.[12] Although women are still underrepresented in preparation programs, the proportion of females appears to be increasing, particularly among the younger students. This finding is noteworthy when compared with the proportions of women administrators in the field at various times during the past several decades. In 1950, 12% of the junior high and 6% of the senior high principalships and 9% of the superintendencies were held by women.[13] In 1971 women held 21% of the elementary and 3% of the secondary principalships and less than 1% of the superintendencies. In 1975 these proportions dropped to 18%, 2%, and less than 1% respectively.[14] Thus it appears that the proportion of female doctoral students is increasing while the proportion of female administrators in public school districts is decreasing. Although it has been recently documented that about 65% of doctoral recipients are placed in positions upon completion of their degrees,[15] whether a disproportionate number of women doctorates have been unable to find positions in the profession commensurate with their training has not been reported.

The largest proportion (33%) of doctoral students in educational administration aspired to various central office positions in contrast to building administration (15%). If a sufficient number of employment opportunities exist at the central office level, preparation programs should respond accordingly. For example, rather than continue to provide a curriculum designed to prepare generalists, programs should reflect specialization by role (e.g., special education administrators) and function (e.g., operations researchers, evaluators, etc.).[16] Clearly, considerable attention must be given to recent placement data on a national scale to determine congruence between students' aspirations and employment opportunities. Should discrepancies exist similar to those suggested earlier, college faculty must take responsible action by informing students of saturated areas and must begin to redesign curricula for emerging fields such as research and evaluation and long-range planning. In addition, faculty must remain responsive to the changing characteristics of students. Among the more salient trends is the increase in female doctoral candidates.

The great majority of currently enrolled doctoral students in educational administration reported that they would choose this area if they were to begin graduate studies again. Whether they will be as positive about their investment in doctoral preparation several years from now remains to be seen.

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1. National Research Council, *Summary Report, 1976: Doctorate Recipients from U.S. Universities* (Washington, D.C.: National Academy of Sciences, 1977).

2. National Research Council, *Summary Report, 1977: Doctorate Recipients from U.S. Universities* (Washington, D.C.: National Academy of Sciences, 1978).

Characteristics and Attitudes of Doctoral Students in Educational Administration

by Martha M. McCarthy, George D. Kuh, and Joan M. Beckman

Are preparation programs in educational administration appropriate? Can graduates realistically expect to get administrative jobs? This study helps us answer such questions.

While the total number of education doctorates awarded by U.S. institutions of higher education has been decreasing in recent years, the number granted in educational administration has increased by 66% over the past decade.[1] Between 1972 and 1977 more than 7,700 educational administration doctorates were awarded, 15% of them to females. In the 1976-77 academic year alone nearly 1,500 educational administration doctorates were conferred, 22% upon women.[2]

John Nagle and Elizabeth Nagle have reported that the current placement rate for these new doctors is only about 65%.[3] Other studies show that the proportion of educational administration students with firm job commitments after completing the doctorate has decreased by at least 50% since the late 1960s.[4] Furthermore, only a slight increase in public school employment has been predicted through the early 1980s.[5]

Given that public school enrollments are declining and that demand for additional administrators appears to be low, it seems important to ask two related questions: What are the characteristics of educators seeking doctorates in administration? How many new doctoral recipients can be assimilated in what types of professional positions in the future? Without the answers, we cannot determine whether preparation programs are providing appropriate training or whether graduates of such programs can realistically expect to find administrative positions commensurate with their experience and preparation.

To gather data pertaining to the first question, we conducted a survey of a national sample of doctoral students in educational administration in the spring of 1978. The survey instrument, the Educational Administration Doctoral Student Survey (EADSS), was designed to gather the following demographic information about students: sex, age, marital status, number of dependent children, year and major of baccalaureate degree, year and major of master's degree, related work experience, professional journals read, and professional aspirations. In addition, the 48-item Professionalism and Research Orientation of Students Inventory (PROSI) was modified for use in this study to assess students' attitudes toward a variety of issues germane to doctoral-level preparation of educational administrators.[6]

All 47 University Council for Educational Administration (UCEA) member institutions and 25 non-UCEA institutions randomly selected from the remaining 88 that grant doctorates in educational administration[7] were invited to participate. Subsequently, five UCEA and five non-UCEA institutions declined the invitation, reducing the sample to 62. All students were surveyed in programs with an enrollment of 25 or less. In larger programs, students were randomly selected. Survey instruments were mailed directly to 1,899 students in February 1978, 70% males, 30% females. Usable questionnaires were returned by 1,160 of them for a response rate of 61% (62% of the males, 59% of the females).

Respondents ranged in age from 22 to 64. About a third were between the ages of 31 and 35. Over three-quarters

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3. John M. Nagle and Elizabeth E. Nagle, "Doctoral Programs in Educational Administration," in Paula Silver and Dennis Spuck, eds., *Preparatory Programs for Educational Administrators in the United States* (Columbus, O.: University Council for Educational Administration, 1978), pp. 114-33.

4. See, for example, A. Stephen Higgins, "Recent Employment Patterns of New Education Doctorates," *Educational Researcher*, October 1973, pp. 9-13.

5. Martin M. Frankel and Forrest W. Harrison, *Projections: Education Statistics to 1985-86* (Washington, D.C.: National Center for Education Statistics, HEW, 1976).

6. George D. Kuh, Faye E. Greenlee, and Brenda A. Lardy, "Profile of Graduate Students in College Student Personnel," *Journal of College Student Personnel*, November 1978, pp. 531-36.

7. *Annual Guides to Graduate Study: Humanities and Social Sciences* (Princeton, N.J.: Peterson's Guides, Inc., 1977).

8. Charles E. Kline and Richard E. Munsterman, "UCEA Doctoral Student Experience, Competency, and Employment Desire According to Race and Sex," *UCEA Review*, September 1976, pp. 1-10.

9. Nagle and Nagle, op. cit.

10. Kline and Munsterman, "Doctoral Students' Characteristics: UCEA Student Data System, 1973-1974," *UCEA Review*, January 1975, pp. 21-26.

11. Nagle and Nagle, op. cit.

12. National Research Council, *Summary Report, 1977*, op. cit.

13. *Educational Leadership: Current Approaches*, Croft Leadership Action Folio 109 (Waterford, Conn.: Croft-NEI, 1975-76).

14. National Council of Administrative Women in Education, *Wanted: More Women in Educational Leadership* (Washington, D.C.: National Education Association, 1975).

15. Nagle and Nagle, op. cit.

16. See Robin H. Farquhar, "Preparatory Programs in Educational Administration," in L. L. Cunningham, W. G. Hack, and R. O. Nystrand, eds., *Educational Administration: The Developing Decades* (Berkeley, Calif.: McCutchan, 1977). □

In-School Truancy in Urban Schools: The Problem And a Solution

by Gerard W. Teachman

Teachers report that nearly 30% of the students in Detroit high schools will be absent from each class on an average day, disrupting or destroying effective instruction. Here is hard-nosed advice on corrective measures.

A recent study of the public high schools in Detroit, conducted by the U.S. District Court Monitoring Commission, contained a section on "in-school truancy," i.e., absence from certain classes while the student is enrolled. The initial reports of in-school truancy were based on observations of the numbers of students in hallways and lavatories during class hours, plus interviews with teachers, students, and administrators. The Detroit Board of Education acknowledged the seriousness of the in-school truancy problem in August 1977 and issued a set of guidelines aimed at identifying in-school truants and dealing with the problem. The guidelines stated that each school was to set up a procedure by which the classroom teachers would first identify the in-school truant and counsel him and his parents. If the truancy continued, the teacher was to report the problem to an administrator who was to seek a solution by any available method, e.g., further counseling, referrals to outside agencies, or rescheduling of classes. If all of this failed, the student was to be transferred to another school, which in Detroit is called suspension.

Critics complained that it made no sense to send a student to a school farther away if he was not attending classes in his neighborhood school. It was pointed out to these critics, however, that in-school truancy means that the student has no problem attending school; he just does not go to all of his classes. If his reasons for not attending all of his classes are "reasonable" (e.g., he works nights or afternoons because he has to), then counseling or rescheduling should solve that problem. There was evidence, however, that some students stayed away from certain classes simply because they wanted to and/or because they thought they could get away with it. Interviews with teachers and administrators revealed that many students were averaging as many as 50 absences from one or two classes and fewer than 10 absences from other classes.

Whatever the reasons for in-school truancy, the effects were obvious. Students in the building but not in class were much more likely to get into trouble. Most of the violence in high schools occurs outside the classroom. Students who had 20, 30, 40, or more class absences in a 90-day semester were failing their courses. Interviews with teachers revealed a more serious pedagogical problem: Many of the in-school truants were *not* failing their classes. It was not unusual for a student who skipped 20 to 40 days to ask the teacher what he could do to make up the work. Since many of the in-school truants are "good kids," it was common for the sympathetic teacher to give make-up assignments that allowed them to pass, sometimes with high grades. The effect of this procedure on students who attended class every day was predictable.

Detroit had issued guidelines in August 1977 to combat this problem, and the court's monitoring commission study included the available statistics for the school years 1977-78 and 1978-79 to document the effects of the guidelines.

Implications of the collected data are far-reaching. The Detroit Public Schools report an official absence rate of nearly 20%, from a low of 6.9% at Cass Technical High School (which has a selected student body) to a high of 33.5% at Southwestern High School. This would mean that the average Detroit teacher could expect six students out of a class of 30 to be absent every day.

The teachers' attendance figures, however, indicate that nearly 30% of the students will be absent from each class on an average day, with a low of 10.4% at Cass to a high of 39% at King High School. This means that the average Detroit high school teacher may actually have nine stu-

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dents absent from a class of 30 every day. If the teacher could expect the same nine students to be absent every day, this might not disrupt the teaching process (actually, class size would be improved), but the absentees may differ every day. Teachers recognize that fewer than one-third of the class will be present every day for a two-week unit. Since most teachers feel obligated to provide make-up work to absent students, the teacher's workload increases. Frequently, the teacher finds himself reviewing previous lessons during much of the normal class time. This bores the student who is always present. It may help the student who is sometimes absent and who will do the make-up work, but it has almost no effect on the chronic truant. He is absent too often ever to catch up.

The difference between the teachers' class attendance figures (71.9%) and the "official" figures of school attendance (82.3%) is 10.4%. Although no exact percentages are available, the principals of the high schools indicated that about 8% to 10% of the students listed as absent miss their first hours by coming late and miss their last hours by leaving early. In 12 of the 22 high schools, however, the difference between the two figures is greater than 10% — as much as 21.2% in one school. That could mean that large numbers of students are in school but are not in their classes. Kettering High School, for example, has a student enrollment of 2,218. The difference between its attendance figures is 19.6%. That could mean that about 200 students (or 10%) are missing their first and last hours and another 200 students are in the building but are not in their classes during *each* class period. A visit to the school during classes seems to support that assumption.

An examination of these figures alone might allow one to conclude that Detroit's guidelines for attendance have had little effect on the truancy problem. However, the monitoring commission's report indicates that the guidelines were not totally adopted by any of the high schools (Table 1).

Table 1 summarizes the official attendance policies of each high school. Although the guidelines call for truants to be identified, counseled, and, if all other efforts fail, suspended, the official high school policies indicate something else. Students are told, in essence, that in 17 high schools they *must get caught* skipping from three to 18 times before they are excluded, i.e., sent home until their parent comes in for a conference. And, as is indicated on the chart under actual number of suspensions for truancy, the student knows that the chances of being suspended for truancy (i.e., sent tc another school) are slim. (The high schools averaged fewer than 15 suspensions per school; nine high schools had seven or less.)

The exclusion and suspension statistics reveal that the guidelines adopted by the school system as citywide policy to deal with the in-school truancy problem have yet to be totally implemented. When this conclusion became evident, the monitoring commission staff interviewed teachers and principals and asked why the policy had not been adopted. All the principals interviewed expressed a reluctance to suspend students for truancy, some because they felt that the students were not to blame and therefore should not be punished, others because they felt that their superiors would not support such a policy and had adopted it in name only to please the court.

Another aspect of this study may be of interest to those who blame the teacher for student truancy. The monitoring commission staff, with limited facilities, is in the process of analyzing teacher attendance reports by subject matter, grade level, and period in the day. Initial findings show that:

1. Students in ninth grade are absent more frequently than students in higher grades.

2. First and second hours and all classes after lunch have the worst attendance, regardless of the subject.

One teacher reported 74% attendance

Table 1. Attendance Policies and Truancy Data for each High School, School Year 1977-78

Name of School	Stated number of truancies allowed before student may be excluded	Stated number of truancies allowed before student may be suspended	Actual number of exclusions for truancy during 1977-78	Actual number of suspensions for truancy during 1977-78
Murray-Wright	15	3 exclusions = suspension	2	2
Northeastern	Policy includes no number	3 exclusions = suspension	101	3
Northern	10	excessive	1	4
Chadsey	Policy includes no number	excessive	13	20
Northwestern	10 +	excessive	18	22
Southwestern	18	after 18	497	13
Western	Policy includes no number	excessive + 3	193	10
Cody	3	3 exclusions = suspension	416	39
Mackenzie	3 +	excessive	123	22
Cooley	10 +	excessive	26	2
Ford	Policy does not mention exclusion	excessive	—	4
Redford	15 +	excessive	116	2
Central	10	15	370	41
Mumford	8	8 +	14	43
Osborn	Policy does not mention exclusion	excessive	178	17
Pershing	3	3 +	5	11
Denby	6	3 exclusions = suspension	221	16
Finney	3-15	15 +	665	59
King	10	15	1,102	12
Kettering	13	13 +	—	1
Southeastern	12	Policy does not mention suspension	46	7
Cass	3	3 exclusions = suspension	23	0

"School administrators must design and *enforce* a policy that makes attendance in all classes, even the boring ones, mandatory."

in a tenth-grade English class in the middle of the day, but only 56% in a similar class the last period of the day. Another teacher reported 62% attendance for his first-hour tenth-grade English class and 82% for his third-hour twelfth-grade English class.

Preliminary analysis of the data indicates that in Detroit public schools, chronic truants skip classes, not certain subjects or particular teachers. This is not to deny the obvious fact that all students prefer classes they feel are relevant and interesting and avoid classes they feel are boring. But to conclude that truancy would be eliminated or substantially reduced if classes were more interesting is to deny two other obvious facts:

1. Many students equate difficult with boring; since most high school courses are supposed to be advanced subjects, they contain elements that are new to the student and consequently appear difficult.

2. Students, like adults, prefer doing what is *most* enjoyable, which means that a class may be interesting to a student but not as interesting as hanging around the school talking to friends, just as a job may be interesting to an adult but not as interesting as an afternoon off. This means that even interesting classes and the exciting teachers have to be consistently the *most* interesting thing in a student's life if that is the sole motivating factor in getting him to attend class. That is an unrealistic aspiration for any teacher, yet some well-intentioned teachers try to attain it. They recognize that some students do equate difficult with boring, so they make their classes less difficult. They talk in the student's language and about subjects that the student finds relevant. Teachers who can do this well — usually the younger teachers — quite often become popular with the students but, to their dismay, soon realize that students also skip a popular teacher's first hour, last hours, and ninth-grade classes. At the same time, students who do attend all of their classes are exposed to a diluted and more superficial rendering of the subject matter, which may help to explain why so many of the all-A students in Detroit public schools score below the fiftieth percentile on national exams.

In the last four years, all 23 Detroit public highs, excluding Cass Technical High School, which has a selected student body, have averaged a combined total of four National Merit Scholarship winners. Compare this with an average of 48 National Merit Scholarship winners in six parochial schools in Detroit. Detroit schools graduate an average of over 8,000 students per year, while the six parochial schools average fewer than 1,000. Yet the racial and economic backgrounds of the students are essentially the same.

Some educators believe that the achievement differences between the two populations are associated with the fact that the parochial students come from caring, enriched backgrounds. A more likely explanation is offered by the students themselves: Parochial schools are "harder, stricter, and if you skip you'll be kicked out." Few students say that parochial schools are more "enjoyable"; in fact, most of them say that the public schools are more enjoyable.

The data on in-school truancy provided by this study suggest some far-reaching recommendations:

1. School administrators must design and *enforce* a policy that makes attendance in all classes, even the boring ones, mandatory.

2. Schools must insist that the primary function of teachers is to teach, not to entertain. If a person can sometimes teach in an entertaining way, his teaching will probably be more effective. However, few English, math, or science teachers can teach and be entertaining to all students every day. But if a person merely entertains, at the price of depth and diligence in his discipline, he must be encouraged to change his ways or his profession. In order to identify the teacher who entertains at the price of quality teaching, administrators must be aware of what goes on in the classrooms. While Detroit teachers are presently required to submit weekly lesson plans, these lesson plans are more helpful to the teachers than they are to administrators. The administrators not only need to know what teachers intend to do, they need to know what they have actually done. Administrators must require teachers to submit summary reports of what they have done in their classes, i.e., the material they have presented, the assignments they have given and returned, and the tests they have administered, as well as the test results.

3. Schools must adopt attendance policies that lead to acceptance of personal responsibility on the part of the student for his attendance; i.e., the student must be punished if he skips.

This last recommendation is the most difficult — and the most essential. Detroit students refer to some principals' attempts to enforce strict attendance policies as "September rules," presented in September and ignored from October on. The reason is that students learn the unspoken rules, i.e., which teachers won't report them, which assistant principal will forgive them, how far they can go before anything "for real" will happen. In a very short time the unspoken rules supersede the formal rules and the policy breaks down. Every teacher knows that you cannot be strict on some days and lenient on others. All students see that as unfair. Teachers also know that it is very difficult to become strict if you have started off lenient.

Effective attendance policies must include counseling for those who skip the first time; counseling can correct problems that are soluble. If skipping continues, the student must be punished. If the punishment fails to stop truancy, then the student must be removed from the normal classroom. If an alternative classroom is available, it must be more demanding than the normal class, not less. It cannot be a reward. It is necessary for all students to work hard to learn; it is not cruel to make a student who chooses to be truant work even harder.

Am I placing responsibility entirely on the student? I don't think so. The administration must be accountable for making and enforcing rules. Teachers must be accountable for teaching all the students, and they must teach them effectively. If a teacher has a changing student population every day, he cannot be held accountable for his teaching — only for his attendance keeping. Parents must cooperate or their children may be sent to another school farther away, or even expelled from the district.

The basic learning formula is: Teacher plus student equals learning (sometimes). If a teacher structures his teaching method for 30 particular students, those 30 students must be present every day in order for the method to be *most* effective. The absence of two or three students can disrupt the process; the absence of 10 to 20 destroys it completely.

It is necessary to include the word "sometimes" in the learning formula because even the greatest teacher with the most talented and cooperative students cannot guarantee results. Positive results can be expected in such a situation but can never be accurately nor totally predicted. Without an effective attendance policy, even the great teacher can expect frustration. □

NOTE

ONLY THE FOLLOWING PAGES OF THIS PUBLICATION

HAVE BEEN FILMED

Cover 1, table
of contents,
p. 344 - 348
p. 367 - 371
p. 388 - 390